

Remarks

The applicants are grateful for the courtesy of Examiner Kurr in a personal interview on February 26, 2008 between Examiner Kurr and Clayton L. Satow, Reg. No. 31,056, attorney for the assignee. At the interview, the Scofield reference was discussed relative to the present claim language. The examiner noted that bass channels may contain spectral "components" of L, R, C, LS, and RS channels.

The comments of the applicant below are each preceded by related comments of the examiner (in small, bold type).

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: Claim 1 recites the limitation "the listener" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim 1 has been amended to provide proper antecedent basis.

Claim Rejections -35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action: A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,5, 7 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Scofield (US 6,853,732 82).

With respect to claim 1, Scofield discloses an audio system including a plurality of channels (fig.3 #54,56) intended to be radiated by an audio device in a predetermined positional relationship to the listener, comprising: a listening area (fig.3 #64), comprising a plurality of listening spaces (fig.3 "spaces occupied by listeners #26"); a directional audio device (fig.3 #58,60), positioned in a first of said listening spaces, close to a head of a listener (fig.3 #26), for radiating first sound waves corresponding to components of a first of said channels; and a nondirectional audio device (fig.3 #52), positioned inside said listening area and outside said listening space, distant from said listening space, for radiating sound waves corresponding to components of a second of said channels (col.1.4 ln.58-63).

With respect to claim 5, Scofield discloses an audio system in accordance with claim 1, wherein said listening area comprises a theater and said first and second listening spaces comprise seating locations within said theater (col.1 ln.33-36).

With respect to claim 7; Scofield discloses a method for operating an audio system for radiating sound into a first listening space and a second listening space, said first listening space adjacent said second listening space (fig.3 "spaces occupied by listeners #2611), comprising: receiving first audio signals (fig.3 "L,R"); transmitting first audio signals (fig.3 #54,56) to a first transducer (fig.3 #52, col.1.4 ln.21-25); transducing, by said first transducer, said first audio signals into first sound waves corresponding to said first audio signals; radiating said first sound waves into a first listening space; processing said first audio signals to provide delayed first audio signals, wherein said processing comprises at least one of time delaying said audio signals and phase shifting said audio signals (col.1.4 ln.37-45); transmitting said delayed first audio signals to a second transducer (fig.3 #58,60); transducing, by said second transducer, said delayed first audio signals into second sound waves corresponding to said delayed first audio signals; and radiating said second sound waves into said second listening space (fig.3).

With respect to claim 16, Scofield discloses a method for radiating audio signals comprising: radiating sound waves corresponding to first audio signals (fig.3 "R") directionally to a first listening space (fig.3 #58,60, "spaces occupied by listeners #26"); radiating sound waves corresponding to second audio signals (fig.3 "L") directionally to a second listening space (fig.3 #58,60, "spaces occupied by listeners #26"); and radiating sound waves

corresponding to third audio signals nondirectionally to said first listening space and said second listening space (fig.3 #52, col.4 ln.58-63).

The applicants respectfully request reconsideration and withdrawal of the rejection of claims 1 and 5 as anticipated by Scofield.

Claim 1 recites "...a directional audio device... for radiating first sound waves corresponding to spectral components in a first frequency range of a first of said channels and a nondirectional audio device ... for radiating sound waves corresponding to spectral components in a second frequency range of a second of said channels, wherein the first frequency range substantially overlaps with the second frequency range."

In Scofield, only signals above 250 Hz are transmitted to localized speakers 58 and 60 (Col. 4, lines 37 – 38). Signal conditioner 44 is operable to combine the left and the right signals for frequencies below 250 Hz and input them to low frequency speaker 52 (Col. 4, lines 22 – 24). There is therefore no substantial overlap between the range of frequencies transmitted to devices 58 and 60 and the range of frequencies transmitted to speaker 52.

Claim 5 is dependent on claim 1, and is therefore allowable for at least the same reasons as claim 1.

Claims 7 and 16 have been canceled.

Claim Rejections -35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of Iwahara (US 4,199,658).

With respect to claim 2, Scofield discloses an audio system in

accordance with claim 1, wherein said directional audio devices comprise a plurality of acoustic drivers (fig.3 #58,60), however does not disclose expressly wherein said acoustic drivers are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space.

Iwahara discloses an audio system wherein a plurality of acoustic drivers (fig.1 #1-4) are positioned and arranged to radiate sound waves that interfere destructively at a first predetermined location in space and to interfere nondestructively at a second predetermined location in space (col. 1 ln.37-68, col.2 ln. 1-2).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the crosstalk cancellation system of Iwahara in the invention of Scofield. The motivation for doing so would have been to cancel inter-aural interferences between the right and left ears of a listener.

With respect to claim 3, Scofield discloses an audio system in accordance with claim 2 in view of Iwahara, wherein said first predetermined location is in a first listening space and said second predetermined location is in a second listening space (Iwahara: col.1 ln.57-66).

With respect to claim 4, Scofield discloses an audio system in accordance with claim 2 in view of Iwahara, wherein said first predetermined location is proximate a first volume for receiving a first ear of a listener and wherein said second predetermined location is proximate a second volume for receiving a second ear of said listener (Iwahara: col.1 ln.57-66).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scofield (US 6,853,732 B2) in view of Fabry (US 7,164,773 B2).

With respect to claim 6, Scofield discloses an audio system in accordance with claim 1, however does not disclose expressly wherein said listening area comprises a vehicle passenger compartment and said listening locations comprise seating locations within said vehicle passenger compartment.

Fabry discloses an audio system to be mounted within an automobile (see figure).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the audio system of Scofield in the automobile

Fabry. The motivation for doing so would have been to provide a virtual sound system within the cabin of a vehicle so as to provide a realistic reproduced sound to a passenger.

Claims 2 – 4 and 6 are dependent on claim 1 and are allowable for at least the same reasons as claim 1.

Response to Arguments

Applicant's arguments filed September 24, 2007 have been fully considered but they are not persuasive.

With respect to claim 1, the Applicant argues that Scofield does not disclose a non-directional audio device for radiating sound waves corresponding to components of a second of the plurality of channels intended to be radiated in a predetermined positional relationship relative to the listener. The Examiner would like to note that the speaker 52 reproduces audio of a separate channel than that of speakers 58 and 60 which reproduce audio of the right and left channels. The present claims merely state that there is a first and second of said channels, with no distinction of the information being transmitted through each channel. Therefore speaker 52 may reproduce exactly the same information as speakers 58 and 60, and still be on a separate channel. However this is not the case in Scofield, the speaker 52 reproduces a signal of a different frequency range as the speakers 58 and 60, thus reinforcing the need for a separate channel.

With respect to claim 7, the Applicant argues that there is no disclosure of processing first audio signals to provide delayed first audio signals and transducing that delayed first audio signal to provide second sound waves radiated into the second listening space. The Examiner disagrees with this assertion. Scofield clearly states that the audio signal portion above 250Hz is delayed compared to the signal portion under 250Hz then transmitted to speakers 58 and 60 (col.4 ln.37-45). Thus the first audio signal is transduced by speaker 52, then simultaneously the first audio signal is delayed then transduced by speakers 58 and 60. The Applicant also argues that the signal received by speakers 58 and 60 are not the same as the first signal received by speaker 52. The Examiner disagrees and contends that these are the same signal, only processed by signal conditioner #44 to transmit only certain frequency ranges of the signal to each speaker.

With respect to claim 16, it is unclear to the Examiner as to what the Applicant is arguing. The Examiner would like to note that the speakers 58 are directionally radiating sound waves to a first listening space (fig.3 listeners right ear) and speakers 60 are directionally radiating wound waves to a second listening space (fig.3 listeners left ear) and speaker 52 is non-directionally radiating sound waves to both the first and second listening spaces.

While the applicants do not necessarily agree with the examiner's Response to Arguments, the applicants nevertheless appreciate that the examiner has taken the time to clearly state his position.

All of the dependent claims are patentable for at least similar reasons as those for the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

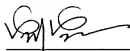
Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

Please apply any charges or credits to deposit account 06-1050, referencing attorney docket no. 02103-519002.

Respectfully submitted,

Date: _____

March 10, 2008



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